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Du-Seop Yoon

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EXAMINER

HIGGINS, GERARD T

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

10/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/570,803	<b>Applicant(s)</b> YOON ET AL.	
	<b>Examiner</b> GERARD T. HIGGINS	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 12-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/06/2006 and 01/28/2008</u> .                               | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-11 in the reply filed on 08/11/2008 is acknowledged.
2. Claims 12-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08/11/2008.

### ***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

4. The drawings are objected to because Figure 7A and 7B are not of a quality that permits one to see the effect of the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must

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be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

6. The abstract of the disclosure is objected to because the phrase "occurs in at least one of the heat absorption layer **and** the separation layer" renders the abstract

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awkward. Perhaps applicants meant “occurs in at least one of the heat absorption layer **or** the separation layer.” Correction is required. See MPEP § 608.01(b).

7. The disclosure is objected to because of the following informalities:

a. At [0016], the phrase “the heat absorption layer is formed of an alloy layer” is awkward. It appears as if applicants meant either that “the heat absorption layer is formed as an alloy layer” or “the heat absorption layer is formed of an alloy.”

b. At [0019], the phrase “a dielectric layer may be included on at least one of the top **and** bottom of the heat absorption layer” is awkward. Perhaps applicants meant “a dielectric layer may be included on at least one of the top **or** bottom of the heat absorption layer.”

c. At [0051], the word “form” in the first sentence appears to be misspelled. Appropriate correction is required.

8. The substitute specification filed 03/06/2005 has been entered.

9. The use of the trademark BLU-RAY DISC has been noted in this application at [0007] and [0012]. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, the phrase “at least one of the heat absorption layer **and** the separation layer” is so awkward as to render the claim indefinite. It is unclear what one is being asked to choose between. Perhaps applicants meant “at least one of the heat absorption layer **or** the separation layer.”

With further regard to claim 1, applicants state that there is a “heat absorption layer” that “absorbs heat irradiated from a beam.” This renders the claim indefinite because it is clear that the layer absorbs light and not heat, also it is unclear how heat is irradiated from a beam.

With regard to claims 3-5, the phrase “the heat absorption layer is formed of an alloy layer” renders the claim indefinite. It is unclear if there are multiple sub-layers or just an alloy contained within the heat absorption layer. Perhaps applicants meant

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either that “the heat absorption layer is formed as an alloy layer” or “the heat absorption layer is formed of an alloy.”

With regard to claim 6, the phrase “on at least one of top **and** bottom surfaces of the heat absorption layer” is so awkward as to render the claim indefinite. It is unclear what one is being asked to choose between. Perhaps applicants meant “on at least one of a top **or** bottom surface of the heat absorption layer.”

### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Liempd et al. (5,214,632).

With regard to claim 1, Van Liempd et al. teach the device of Figure 1.

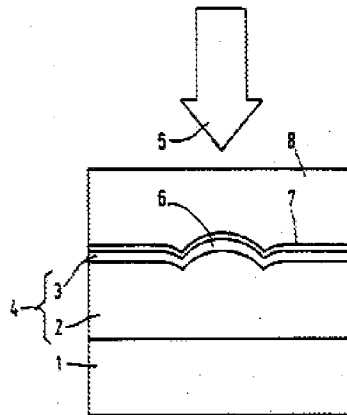


FIG. 1

The device is comprised of a master substrate **1**, a heat absorption layer **2**, which is coated on the master substrate and absorbs heat irradiated from a beam **5**, and a separation layer **3**, which is coated on the heat absorption layer (col. 5, lines 12-35). It is clear from the Figure that the light absorbed from the laser beam heats up either the heat absorption layer **2** or the separation layer **3** and a volume change occurs, which is the bump **6**.

With regard to claim 11, the separation layer **3** is heated according to the method described at col. 3, line 59 to col. 4, line 11. The glass transition temperature is above room temperature, and when the laser beam heats the separation layer **3** above that glass transition temperature it allows the layer to become rubbery and thereby deform to afford recording of the bump (col. 5, lines 45-52). The Examiner deems that this disk will not have been heated above the melting point because Van Liempd et al. state that there is "no or noteworthy plastic deformation;" furthermore, if the material was raised beyond its melting point, it would have destroyed the device, and therefore the

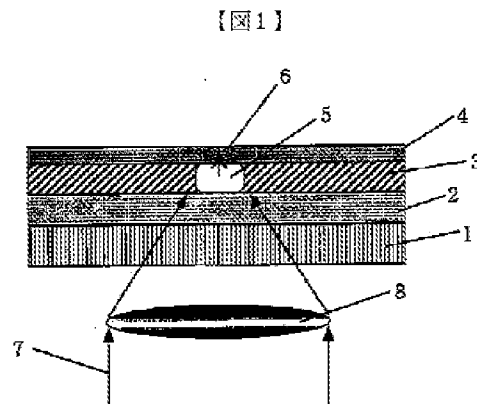


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Examiner deems the limitation that the separation layer was heated to a temperature below the melting point to be inherent in the reference.

14. Claims 1-3, 6, 7, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuwabara et al. (JP 2002-365806).

With regard to claim 1, Kuwabara et al. disclose an optical master disc [0002] of the structure in Figure 1.



The device is comprised of a master substrate **1**, a heat absorption layer **3**, a protective dielectric layer **2**, and a separation layer **4** [0011]. The heating of the light-to-heat absorption layer will transfer that heat to the separation layer as is seen in the Figure. This will inherently result in a volume change in at least one of the separation layer or the heat absorption layer.

With regard to claim 2, the separation layer is a photoresist [0015].

With regard to claim 3, the heat absorption layer is an alloy [0018].

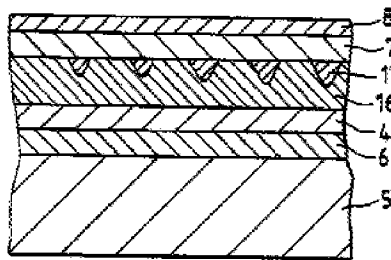
With regard to claims 6 and 7, the protective layer may be a ZnS-SiO<sub>2</sub> dielectric [0020].

With regard to claims 9-11, given that Kuwabara et al. discloses a recorded master as claimed, it is clear to the Examiner that the device of Kuwabara et al. can perform the intended use limitations of claims 9-11.

15. Claims 1, 3-7, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Terao et al. (5,368,986).

With regard to claim 1, Terao et al. disclose the device of Figure 7.

*FIG. 7*



The optical medium of their invention may be considered a recorded master because the information contained within the recording layer may be reproduced and reused in the manufacture of an information storage medium (i.e. mp3 files). The device is comprised of a master substrate **8**, a heat absorption layer **16**, which is on the master substrate, and a separation layer **5** (col. 8, line 64 to col. 9, line 10 and col. 13, lines 17-36). The layer **16** has recorded data on the bumps or dents of the layer **16**, providing discrete data points.

With regard to the intended use requirement that with a temperature change produced by a recording beam there is a subsequent volume change that occurs in at

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least one of the heat absorption layer or the separation layer, the Examiner notes that intended use limitations are not dispositive of patentability; furthermore, the Examiner deems these intended use limitations to be inherent in the device of Terao et al. because the same alloy material claimed by applicants is used in the recording layer (heat absorption layer) of Terao et al. Since the same chemical compositions are used, they will inherently display the same effects when exposed to a temperature change.

With regard to claims 3-5, the heat absorption layer is comprised of a TbFeCo alloy (col. 13, lines 17-36).

With regard to claims 6 and 7, there may be top and bottom protection layers **7** and **4**, respectively, which are comprised of the a ZnS-SiO<sub>2</sub> dielectric mixture (col. 9, lines 2-5 and col. 13, lines 17-36).

With regard to claim 9-11, given that the Examiner has shown all the limitations of the device of claim 1 to be anticipated by Terao et al., the Examiner deems the intended use limitations of the device of claim 1 to be inherent in the device of Terao et al.

### ***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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17. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Liempd et al. (5,214,632) in view of Ando (4,586,173).

Van Liempd et al. discloses all of the limitations of applicants' claim 1; however, they fail to teach a separation layer that is made of a photoresist or a heat absorption layer made of an alloy.

Ando teaches that in recording medium masters a photoresist may be used as the top layer or separating layer (col. 6, line 60 to col. 7, line 29). They also disclose that an alloy may be used as the heat absorption layer (col. 4, lines 45-58).

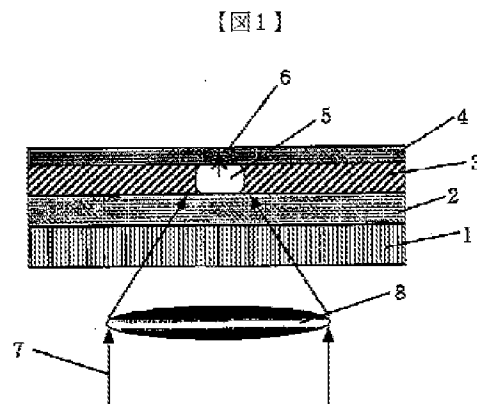
Since Van Liempd et al. and Ando are both drawn to master disks for optical recording media; it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the separating layer out of a photoresist. The motivation for doing so would be to provide a layer that could be patterned in any way needed to provide extra markings or depth to the pits that would be formed on the stamper.

18. Claims 2, 3, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Liempd et al. (5,214,632) in view of Kuwabara et al. (JP 2002-365806).

Van Liempd et al. disclose all of the limitations of applicants' claim 1; however, they fail to disclose a photoresist as the separation layer, an alloy as the heat absorption layer, and a dielectric layer formed of ZnS and SiO<sub>2</sub> on side of the of the heat absorption layer.

Kuwabara et al. disclose an optical master disc [0002] of the structure in Figure

1.



The device is comprised of a master substrate **1**, a heat absorption layer **3**, a protective dielectric layer **2**, and a separation layer **4** [0011]. The separation layer is a photoresist [0015], the heat absorption layer is an alloy [0018], and the protective layer may be a ZnS-SiO<sub>2</sub> dielectric [0020].

Since Van Liempd et al. and Kuwabara et al. are both drawn to optical master discs; it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the heat absorption material, separation layer, and protective layer of Kuwabara et al. as the effective layers in the optical master device of Van Liempd et al. The motivation for doing so is in the fact that the device of Kuwabara et al. is drawn to a high-density master, which is a most-desired effect in the art of optical recording media.

19. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terao et al. (5,368,986), as applied to claim 1, in view of Yamada et al. (5,255,260).

Terao et al. disclose all of the limitations of applicants' claim 1 in section 15 above; however, they fail to teach a situation where the heat absorption layer is formed as an alloy dielectric layer of a dielectric and an alloy.

Yamada et al. teach forming a recording layer (heat absorption layer) of a dielectric and the recording material (col. 2, lines 39-43).

Since Terao et al. and Yamada et al. are both drawn to optical recording media; it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the dielectric and alloy materials of Terao et al. into a one layer dielectric alloy layer. The motivation would be to provide extra heat resistance from cracking or other destructive results.

20. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwabara et al. (JP 2002-365806), as applied to claim 1, in view of Yamada et al. (5,255,260).

Kuwabara et al. disclose all of the limitations of applicants' claim 1 in section 14 above; however, they fail to teach a situation where the heat absorption layer is formed as an alloy dielectric layer of a dielectric and an alloy.

Yamada et al. teach forming a recording layer (heat absorption layer) of a dielectric and the recording material (col. 2, lines 39-43).

Since Kuwabara et al. and Yamada et al. are both drawn to optical recording media; it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the dielectric and alloy materials of Kuwabara et al. into

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a one layer dielectric alloy layer. The motivation would be to provide extra heat resistance from cracking or other destructive results.

21. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwabara et al. (JP 2002-365806), as applied to claim 3, in view of Uchiyama et al. (4,849,304).

Kuwabara et al. disclose all of the limitations of claim 3 in section 14 above, including mentioning that GeSbTe-based alloys are good for their super-resolution alloy layer [0018]; however, they fail to disclose the type of alloy mentioned in claims 4 and 5.

Uchiyama et al. disclose that TbFeCo alloys and GeSbTe-based alloys are interchangeable in optical recording media (col. 6, lines 39-68).

Since Kuwabara et al. and Uchiyama et al. are both drawn to alloy recording material layers; it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the functional equivalents of a TbFeCo alloy seen in Uchiyama et al. with the GeSbTe-based alloy that is seen in Kuwabara et al.

### ***Conclusion***

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Examiner has cited patents relating to magneto-optical recording media.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is

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(571)270-3467. The examiner can normally be reached on M-F 9:30am-7pm est. (1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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